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FIG. 107. A surprising habitat for Echinocerei hiding among the golden wild flowers in the open fields of Texas. Haselton photo.



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February, 1944

CACTACEAE

New Genus—*Bonifazia* Standl. & Steyerl.

Plantae epiphyticae ramosae inermes, caulibus lignosis teretibus, ramis complanatis tenuibus oblique breviter crenatis acuminatis vel obtusis; flores parvi roseo-purpurei ad apices crenarum nascentes; ovarium ovale bracteatis minutis late ovatis obtusis conspersum; perianthii tubus valde elongatus angustus limbo ca. quadruplo longior, extus squamis paucis latis remotis onustus, prope basin subito recurvus; perianthii segmenta pauca late oblonga obtusa apiculata; stamina numerosa (ca. 35) in fauce tubi inserta, filamentis gracillimis exsertis, antheris oval-ovoides basi emarginatis parvis; stylus gracillimus staminibus longior, stigmatibus 4 brevibus; fructus ignotus.

New Species—*Bonifazia quezalteca*

Standl. & Steyerl.

Caulis gracilis, vetustioribus 5-6 mm. diam.; rami oblongo-lineares vel interdum ovato-lanceolati 15-47 cm. longi et ultra 4-5 cm. lati, apice acuti vel acuminati, rarius obtusi, basi attenuati et subteretes, in sicco tenues, crenati, crenis 2-3 cm. longis plus minusve obliquis; areolae parvae brevissime pilosae; ovarium 6-7 mm. longum, squamis vix ad 1 mm. longis; perianthii tubus 4.5 cm. longus prope medium 4 mm. latus, ad faucem 8 mm. latus, segmentis ovalibus vel late oblongis obtusissimis ca. 1.5 cm. longis; stamina purpurea 1 cm. longe exserta et ultra, antheris ca. 1 mm. longis; stylus purpureus staminibus bene longior, stigmatibus linearibus 2 mm. longis—Guatemala: Dept. Quezaltenango: Above Mujuliá, between San Martín Chile Verde and Colombia, alt. about 1,800 meters, pendent from tree trunks in dense damp mixed forest on white sand slopes, February 1, 1941, Paul C. Standley 85603 (type in Herb. Field Mus.).

This is one of the most beautiful and ornamental of the epiphytic cacti of Central America. While of course the flowers are not so large as in some species of *Epiphyllum* or of the *Cereus* group, they are borne in great abundance and are of exceptionally beautiful color and form. They are of a delicate, rather pale reddish purple. The plants hang loosely against the tree trunk, the flowers being abruptly recurved from the base so that their apices point upward.

It was believed at first that this Guatemalan plant could be referred to the genus *Wittia*, which it resembles in having the tube of the

perianth much longer than the limb. However, the plant constitutes a very distinct unit, that can not be placed satisfactorily in any of the groups segregated by Britton and Rose, and has much better claims to generic rank than most of those. Its relationship is clearly with the monotypic genus *Chiapas*, which also occurs in Guatemala. It has in common with that a distinctive growth habit, and particularly the narrow perianth, abruptly recurved from the base. The latter character of *Chiapas*, strangely enough, seems to have escaped the attention of the authors of that genus, although it is very conspicuous in their illustration of it. Perhaps they believed that the position of the flowers was the result of handling during drying. The Guatemala plant can not be referred satisfactorily to *Chiapas*, because in that the segments of the perianth are two to three times as long as the tube, very narrow and long-attenuate, and the stamens are about half as numerous.

The new genus, whose single species is one of the handsomest of Guatemalan plants, is dedicated to the family of Don Guillermo Bonifaz of Quezaltenango. The senior author has spent two months in their *pensión* in that city, and has many cherished memories of the gracious hospitality extended to him. To no other lodging place in Central America would he return with so much pleasure as to the *Pensión Bonifaz*, of which he has only happy memories, despite the benumbing cold and fog that so often characterize the climate of that western metropolis of Guatemala.

EDITOR'S NOTE: We wrote to Dr. Standley to see if photographs were available but thus far this plant is not yet in cultivation.

NEW BOOK FROM ENGLAND

Flowering Cacti by E. Lamb was published in 1943 and is the only cactus book that we know of that was published in England during this war. It is a modest little book of 56 pages and deals with a representative collection and its care. There are 21 illustrations. Price postpaid 90c. Foreign postage add 10c.

BOX 101, PASADENA



FIG. 108. The Texas *Sedum nuttallianum* forms a dense mat at the base of *Opuntia leptocaulis* growing on a limestone outcropping. Note the thistle in flower.

Millions of Cacti Under One Roof

By SCOTT E. HASELTON

Photos by author

Gas rationing, no tires, and no time to go to the cactus country. Oh well, let's relax and take an armchair trip until such time as it may become a reality. Where to? Texas, that state

which to the uninitiated means waste land, sand, and no water—that's where we should find cacti. Let's run down to Eastland where Guy Quinn and his Novelty Plant and Pottery Company

claim to be in the center of the United States, with a billion cacti in his dooryard.

Well, here we go, leaving behind sunny California and heading for that very state which we have tried to avoid when we used to drive East. We are soon far from the orange trees and the fertile garden spot that lies on the ocean side of the Sierras. We skirt the edge of the Borrego Valley, which is an arm of the Mojave Desert. We pass the Devil's Garden with its dense stands of Jumping Cacti (*Opuntia bigelovii*), and Barrel Cacti four feet high (*Ferocactus acanthodes*) the latter equipped with drinking fountains for the desert wanderer! We drop down past the Salton Sea, that mysterious, below-sea-level body of water with its phantom ships.

We cross the Colorado River at Yuma, Arizona, where the temperature is at least 120° in our air-conditioned war-time Pullman. Arizona is a state of many climates and altitudes and one may enjoy the pines or the cacti. The trains follow the old trails of the Indians through the sage lands of the Yuma area at 142 feet elevation, to the edge of the forests of Giant Cacti (*Carnegiea gigantea*) near Tucson, where the elevation rises to 2386 feet. Although the desert shows considerable sand and very little grass cover, the *Opuntias*, sage brush and mesquite are seldom over four to six feet in height, with



FIG. 110. Close-up of yellow-flowered *Sedum nuttallianum* that is also common in western Arkansas and Oklahoma.

the exception of the Giant Cacti and an occasional Smoke Tree (*Parosela spinosa*). There are smaller cacti such as *Echinocereus*, *Ferocactus*, and a few Mams, growing under the protection of sage brush. The mortality of young cacti must be great indeed and few survive the intense periods of drought.

Leaving Tucson we pass dense thickets of *Opuntia vestita* with its fruit hanging in chains, one on the end of another. Then up another thousand feet and the rolling barren hillsides are covered with Ocotillos (*Fouquieria splendens*) and now and then a Barrel Cactus stands out in silhouette. At 4000 feet elevation around Rodeo and Lordsburg, New Mexico, there are endless sandy plains almost devoid of vegetation except sparse sage brush and *Yucca elata*. Forage is at a premium and cattle feed on the needle-like leaves of the *Yucca*; the new growth of *Opuntias* must be a treat to hungry cattle compared to the fibrous leaves of the yuccas.

We must be approaching Texas because these waste lands are as we have pictured the whole state. The only things that break the monotony are the flower stalks of *Yuccas*, some at least twenty feet tall. Now and then a gust of wind forms a sand spout and though we anticipate the excitement of an approaching miniature cyclone, it disappears skyward. From here on into El Paso we drop from 4600 feet to 3700. We can imagine the cold, desolate winter winds that sweep this area. We notice a small cross of desert wood marking a mound not far from the shacks of a "section" crew—perhaps a desert casualty. As the sun's heat hits the distant



FIG. 109. On the sandy plains of New Mexico, *Yucca elata* seems to survive when all other vegetation fails.



FIG. 111. Typical mesquite (*Prosopis juliflora*) in the Eastland area. Note the mistletoe which is in abundance.

mountains we see a beautiful lake edged with trees and the usual windmill—a perfect mirage.

And then the unusual—thunder and lightning and a rain that lasts just long enough to tantalize a thirsty land. There is the unforgettable smell of the rain falling on parched ground. But we are accustomed to the unusual and are satisfied by catching a few stray drops.

After leaving El Paso with its fertile irrigated fields we pass acres of baled cotton awaiting shipment. Sage brush and grass lands are more common and mesquite bushes are three to five

feet tall. The next morning we are nearing Abilene which is almost at the geographical center of the state. This is the area so well known to the boys who have trained in nearby camps. We have dropped to around 2000 feet elevation and all is a dense green of mesquite. Sand is nowhere to be seen and the grass and wild flowers do not look like a cactus country. Maybe we are making a mistake to seek cacti in this locality, but soon we will be in Eastland and Guy Quinn will have to show us some cacti, or else!

As far as you can see, the soft rolling hills remind one of New England, and the mesquite 10 to 30 feet tall give the entire area a wooded appearance. But here we are in Eastland. "What, getting off in this wilderness?" asks a fellow passenger. You jump down four feet off the steps of the train into tall weeds about a half mile from the station—the station was not built for war-time trains this long. Here comes a bus to take you to the station! No, it's Guy Quinn himself.

Who is this fellow Guy Quinn? Let's get acquainted. A typical Texan who is rough yet mild. He may be slow and easy going, yet to see him at the age of fifty-five take after an armadillo, you would think him to be fifteen. He was "born and raised" in this locality and has seen oil booms come and go. During the wild rush in 1920 he was assigned the building of a \$7,000,000 electric plant—the 300-foot smoke stack of which is a land-mark and a monument to his ability. The layman might think that Guy Quinn must have degenerated when he went into the cactus business, but the size of the institution he has built up contradicts this.

The Novelty Plant and Pottery Company has its own clay deposits, its own kilns for making pots, and 80 to 100 employees including packers



FIG. 112. Novelty Pottery in which cacti are planted in the "best mud in the world."



FIG. 113. Plant association? Within view of the camera was *Mammillaria applanata*, *Echinocereus reichenbachii*, two *platyopuntias*, *Opuntia leptocaulis*, cornflowers, thistles, and the *Sedum* previously mentioned.



FIG. 114. Guy Quinn in one of his natural greenhouses. It was under this mesquite that we counted over 200 two-inch cacti. Except the *Opuntias*, there are no large or long-lived cacti in this area—perhaps due to more moisture and shade than on the Arizona deserts.



FIG. 115. The Twisted Ribs (*Hamatocactus setispinus*) hide in the grass. The yellow flowers and red fruit are a thrill to any cactophile.



FIG. 116. Larger clumps of brown-spined *Echinocereus reichenbachii* grow in the more open locations where they are subjected to less damage by cattle.

and shippers. It supplies 1031 chain stores and proves that Guy Quinn is a born merchandizer and could make good his boast that he could fill an order for a million cacti. Branches of this



FIG. 117. Sad but friendly is the horned toad of Texas.

unique concern are in every neighboring town, and wherever a man or his family needs work that can be done at home, Quinn hauls them a load of clay and some molds and they go to work.

Before we look for cacti let's take a look at the town of Eastland. During the oil boom

the population increased to over 9000 and then settled back to about half that number as the undesirables who usually follow booms of that kind left town. All that remains of those exciting days is a six-story hotel skyscraper surrounded by all new one-story buildings. Those who escaped those days of quick gains and quicker losses settled down to the raising of white-faced cattle, the building of good roads and schools, and the developing of good citizens.

The climate of this part of Texas is comparatively mild in winter and although zero temperature has been recorded it seldom goes below 25° F. The summer heat is modified by clouds that blow in from the gulf and hang over this area, thus holding off the early morning heat that might be more intense. The mesquite stays green even after the grass turns brown and it must contribute to this ideal climate so dear to the heart of a Texan, who may remark, "you go to California to die but you come to Texas to live."

This strange country is full of excitement, with its rattlers, armadillos and—oh yes, cacti. You hesitate to venture far into the grassy flats or among the rocks without a heavy club because the rattlers are numerous; in pre-war days they were gathered by the truck loads, packed alive and sent to China where they were used as a source of serum for combating snake bite. You may also come across a family of horned toads just hatching from eggs laid in the warm ground; as they emerge from their shells they dash off in high gear as though they had been

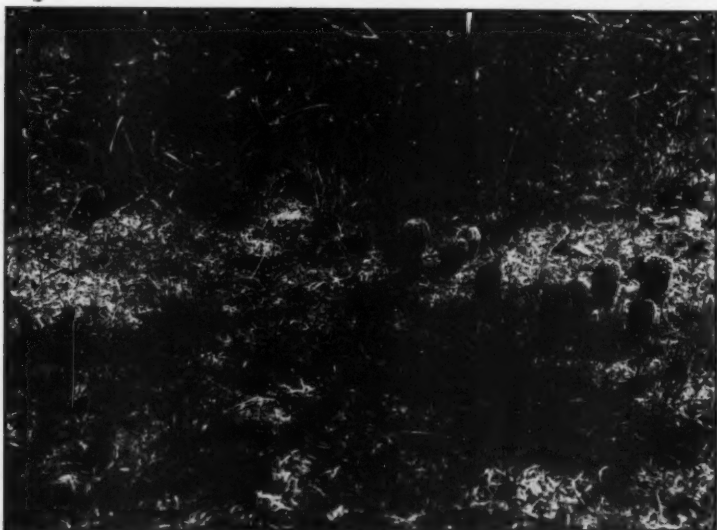


FIG. 118. Thousands of Lace Cacti make their homes in the grassy protection close to shrubs. The limestone seems to make the spines pure white.

scampering for a lifetime. Too often they venture too far on the highway which is strewn with their flattened remains. Scorpions too await you and you must beware of the painful sting of their tails. It is said that an armadillo will sit and look at you as long as you talk to it, but not so the one we met; it was a race between the armadillo and Quinn, and when they got to the wire fence one of them stopped! Wild



FIG. 119. *Echinocereus fendleri* forms clumps of hundreds of plants.

pecan trees follow along the water courses where they await the first pickers in the fall.

Now that we know the country let's look for cacti. As we drive along Highway 80 we are sure that there are no cacti in all that vegetation. We are now on what the natives call the Cap Rock Flats, which are a series of flats often with a sharp rise of 600 feet and then 20 miles or so of plateau. The slopes are covered with cedars, dwarf and scrubby oaks and occasionally larger trees. The flats are limestone and sandstone with shallow top soil; ploughed fields show the outcroppings. The soil is thus sweet and free from acids and fungus and therefore ideal for cacti. Water is near the surface as is shown by the "tanks" or mud-holes that supply the cattle with drinking water. The mud flats are covered with grass and wild flowers which completely hide the millions of cacti except the *Opuntias*, which are not as dense as in the dry deserts of Arizona.

Let's take a look under that mesquite 20 feet

high, which covers the ground with diffused sun-light. There they are—hundreds of them: Lace Cacti (*Echinocereus reichenbachii*), Cob Cactus (*Echinocereus perbellus*), Twisted Rib (*Hamatocactus setispinus*) in flower, a small seedling of an *Opuntia*, and a bush of *Opuntia leptocaulis* in the background. Actually we have counted 200 small plants within twenty-five square feet under one tree.

In other spots it has been necessary to tread on the three-inch Lace Cacti to get through them. It really hurts to feel these beautiful lacy-spined plants squashing under your feet. Always in the grass and at the edges of bushes we find hundreds of small plants covered by a natural greenhouse, the mesquite. Under other mesquite trees we find ten to fifteen Twisted Ribs, mature plants six to ten inches tall in flower or with maturing fruit. Many of the Lace Cacti and the Cob Cacti are beautiful three or four-branched plants ten inches tall, whose greatest mortality is due to grazing cattle. Occasionally, we saw Quinn turn back to replant a



FIG. 120. The mat-forming *Opuntia grabamii* is to be avoided.

cactus which had been uprooted by cattle.

We may also stop in a field of wild flowers and find these same beautiful white and brown-spined cacti by the hundreds. The more open spaces or mud flats are dotted with Devil's Heads (*Homalocephala texensis*) and their brilliant scarlet fruit is as attractive as their earlier flowers. As these grassy flats become dry and the ground cracks with the heat, the plants seem

to withdraw or shrivel partially into the ground, yet they have a comparatively shallow tap root less than twelve inches long.

Prickly Pears are less widely distributed than in areas where the mesquite is not so thick. Quinn has seen them used as cattle feed with good results when supplemented with cottonseed meal. He says the cattle follow the man with the blowtorch and they eat the pads as fast as the spines are burned off. *Opuntia leptocaulis* is ever present with two types of joints; one is made up of small joints about an inch and a half long while the more robust type has joints sometimes four times as long. The mat-forming *Opuntia grabamii* is found in scattered areas and although its short joints do not rise more

than six inches above the ground, neither man nor beast cares to penetrate them.

Besides the half dozen species of cacti that predominate in this area there are restricted localities where other kinds are found. For instance *Echinocereus fendleri*, *Coryphantha vivipara*, *Mammillarias applanata* and *meiacantha*, *Neobesseya missouriensis* and perhaps a dozen others in lesser quantities.

Quinn owns 11,000 acres of this cactus land which is self seeded, self watered and requires no cultivating. It is equipped with a natural glasshouse of mesquite where the foliage is neither too dense nor too thin. There are no nematodes or mealies—only cattle who have priorities. The plants are not forced and grow naturally. When these cacti are placed in the "best mud in the world," as Quinn brags, they will remain healthy and flower several seasons providing they are treated with practically no water.

We have to admit that this part of Texas is a cactophile's paradise and roughly figuring that with a minimum of one cactus to every square foot of Quinn's 11,000 acres, he must have at least a hundred million cacti—all under one roof.

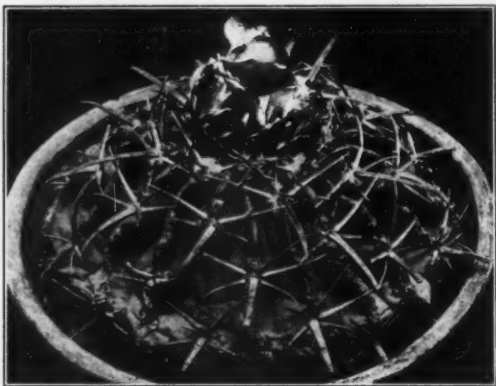


FIG. 121. *Homalocephala texensis* likes the mud flats which dry out in early spring leaving the plants encased in cement-like soil. Photo from Britton & Rose.

Echinocereus subinermis

By GEORGE LINDSAY

For some time past there has been confusion regarding the relationship of *Echinocereus subinermis* and *E. luteus* (1). Britton and Rose considered them to be separate species (2), as have most of the later authors. This belief is probably the result of an early imperfect knowledge of *E. luteus inermis*, and of the distribution of the plants.

The original description of *Echinocereus subinermis* appears in Seeman's "The Botany of the Voyage of H.M.S. Herald", page 291, 1856. The Cactaceae in this work were handled by Scheer, who explained (3) that the plants described had been sent to him mostly by John Potts, director of the mint in Chihuahua, having either been collected by the said John Potts or by his brother, Frederick, who resided chiefly on the border of the State of Sonora. This ma-

terial was collected and shipped to Scheer almost each year between 1842 and 1850, when J. Potts brought back a large collection. Thus, the type specimen was a dead plant, apparently not preserved in herbarium, sent by John or Frederick Potts to Prince Salm-Dyck in 1845 or afterwards, and probably collected on the boundary between Sonora and Chihuahua by Frederick Potts. Misunderstanding has resulted from the fact that the distribution and type-locality have been given as "near Chihuahua (City)", which is a great distance from the type locality of *E. luteus* at Alamos, Sonora. In reality the type locality of *E. subinermis*, if on the border of Sonora, could very possibly have been within twenty-five miles of Alamos!

The original description of *Echinocereus subinermis*, translated, reads as follows:



FIG. 122. Two specimens of *Echinocereus subinermis* collected near Alamos, Sonora. Note the variation in length of spines. Each of these specimens has seven ribs, while the offshoot has eight.

"H.D. p. 41 ¶1 †*Pentalopfi* (4)

270. *Echinocereus subinermis* S.D. in *literis*. A very distinct plant, clavate or subglobose, rusty colored, 5- or 6-ribbed, nearly naked and unarmed, with sharp repand ribs: areoles ca. 1.25 cm. apart, minute; spines 3-4 very minute, subulate as seen under the lens. Flower large, very beautiful, yellow. Tube short, about 1 inch long. Petals pale yellow, spatulate-lanceolate erose at the tip, acute. Stamens as a whole appressed to the style, the filaments yellow, the anthers live yellow (saffron-yellow). Style longer than the stamens, stigmas 8 green. (Description from a dead specimen.)"

The notes following the description read:

"Received 1845 and afterwards. This plant bears no resemblance to any *Echinocereus* received; but on account of its large flowers and green stigmas, cannot be ranged under any other division. There are varieties, one with three or four long spines closely appressed to the plant, but not altering its general aspect."

On March 19, 1910, Rose, Standley and Russell found and collected a single specimen of *E. subinermis* in the high mountains above Alamos, Sonora, Mexico. This specimen became the type (U. S. Nat. Herb. No. 535975) of *Echinocereus luteus*, described by Britton and Rose (5) in 1913. Their error in not recognizing in it *Echinocereus subinermis* is partly explained in the note following the original description, which states:

"Only a single specimen was seen, growing on the exposed rocks. The specimen was sent to Washington, where it produced four flowers in 1910 and two in 1911. The species is perhaps nearest *E. inermis* but has more ribs and different spines." (6)

These notes are the result of Britton and Rose's basing their species on a single specimen, without further studying material from the

type-locality, which unfortunately was not definitely known to them. They list a difference in the number of ribs and differences in spines as the characters separating *E. luteus* from the older *E. subinermis*. These characters are variable in *E. subinermis*, as Scheer knew, stating "there are varieties, one with three or four long spines closely appressed to the plant, but not altering its general aspect" (7). The difference used by Britton and Rose to separate the two species in their key is: "Ribs 5-8, spines in flower tube short, *E. subinermis*; Ribs 8-9, spines on flower tube and ovary acicular, *E. luteus* (8)."

I have collected a number of specimens on Alamos mountain, as well as at Guirocoba Ranch, thirty miles south east of there, towards the Sinaloa-Chihuahua border. Most of those specimens collected bore seven ribs, which, despite their having been collected at the type locality of *E. luteus*, would key them into *E. subinermis*. Some had as few as five ribs, others as many as nine. The other separating difference is supposed to be the number and length of spines. This character, too, is variable, as we have learned from Scheer's own note. In collecting plants near Guirocoba I noticed that some specimens were naked, with no visible spines arising from the areole, while others bore spines three cm. long! All variations between the two extremes, including the number of spines per areole, were observed. These characters, consequently, would hardly be stable enough to give the Alamos plant even varietal rank. This, coupled with the fact that the type locality of *E. subinermis* was probably fairly near Alamos, Sonora, rather than in the distant Chihuahua City, as it has so far generally been

believed, would indicate that only one species is involved, this being *Echinocereus subinermis* S. D. ms. ex Scheer in Seem., and that *E. luteus* Britton and Rose must be reduced to it. This would have been clear to Britton and Rose if more specimens, showing their variations in ribs and spines, had been available to them for study, or if the lone specimen they had available had not represented about the extreme variation from type!

I would like to draw up the following description, broad enough to cover the differences to be found and permissible within the limits of *E. subinermis*:

Simple at first, later branching from base, to 25 cm. high and 10 cm. in diameter; ribs 5-9, rounded; areoles minute, bearing slight gray felt; radial spines sometimes lacking, usually, if present, deciduous, but sometimes persistent and up to 20 mm. long. Flowers appearing near the top of plant, large, to 8 cm. long, opening broadly, yellow, tube short; outer perianth segments streaked with red, inner perianth segments pale yellow; stamens appressed to style. anthers and filaments yellow; stigma lobes 8, green; fruit obovoid-globular, green, splitting; seeds small, black.

Type specimen: A dead plant, apparently not preserved in herbarium, sent by J. or F. Potts to Prince Salm-Dyck in 1845 or afterwards, probably collected on the boundary between Chihuahua and Sonora, Mexico.

Distribution: South western Chihuahua, north eastern Sinaloa, and south eastern Sonora, Mexico.

This is a handsome little plant, which flowers quite freely in cultivation. It is usually found growing on rocky cliffs in canyons in semi-shade, where the body has a beautiful green color. If exposed to the sun the plants assume a deep red or purple color. They sunburn quite easily and because of their soft, lightly protected bodies, readily bruise and scar. The plants vary a great deal in size, one collected near Guiracoba measuring 13 inches in length with a diameter of 2½ inches. Another, though only eight inches tall, was 3 inches in diameter. Tiny, globular plants only an inch and a half tall have flowered in my garden!

Dr. Craig and I, in 1938, traced the distribution of this species from near Alamos, Sonora, through the corner of Sinaloa and into the Sierra Madre range well into Chihuahua.

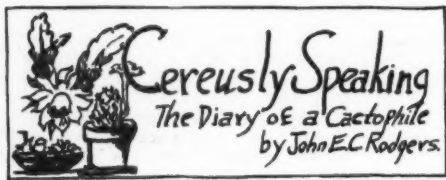
I wish to express my appreciation to Leon Croizat for making the original description of *Echinocereus subinermis* available to me, together with a number of notes about its collection and description.

NOTE

Plants mentioned as having been collected by the author were collected under special permit from the Departamento Forestal y de Caza y Pesca, Servicio de Pastos Hierbales y Arbustos Silvestres, No. 224-9309, signed March 6, 1939, by Rodolfo Sada Paz.

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1. Cactus and Succulent Journal VI:77. 1934.
2. Britton and Rose, Cactaceae, III:16. 1922.
3. Seemann Botany of H.M.S. Herald, 285-6. 1856.
4. The Cactaceae of "The Botany of H.M.S. Herald" is the work of F. Scheer, and should therefore be cited as to author as follows: *Scheer in Seemann*. The description of *E. subinermis* by Prince Salm-Dyck was in manuscript which was duly noticed by Scheer in the original description. Scheer was connected with Salm-Dyck, whose *Hortus Dyckensis* 1849, published in 1850, is constantly referred to as *H. D.* in the pages of Seemann's opus, it being evidently understood that the Cacti listed therein are addition to the *Hortus*. Thus, *Echinocereus subinermis* is preceded by the abbreviation "H.D. p. 41 ¶1* †*Pentalophi*" which means that this plant should be listed in the *Hortus Dyckensis*, p. 41, under the sect. *Pentalophi*. (Note by Leon Croizat.)
5. Contr. U. S. Nat. Herb. 16:239. 1913.
6. *ibid.*
7. Seemann, The Botany of H.M.S. Herald, 291. 1856.
8. Britton and Rose, Cactaceae, III: 4. 1922.



ECHINOCEREANAE—ECHINOPSIS

Marshall and Bock's Genus 6 of Tribe III

Echinopsis is native to the region from Central Argentina to Central Bolivia. A genus with white to rose-colored blossoms of large flowering, small, globe-shaped plants which occasionally become cylindric twelve to fourteen inches in one or more species three feet high. Grow best in a fairly heavy rich soil. Suggested soil mixture: ½ garden loam, ¼ leafmold, and ¼ sharp sand. An application of fertilizer twice a year is recommended. Easily grown from seed and propagation is greatly simplified by the fact that offsets near the base of the plant form their own roots while still attached to the parent. Any and all species are desirable and most species are obtainable. M. & B. recognize 25 of the original 28 of B. & R. with 16 or more which have recently been discovered. Lime in small quantities can be used in potting soil. So far I have not found one of this genus that does not become a host to "spine bugs" and "mealy bugs" if not inspected and sprayed frequently for same. In fact my "flit-gun" sprayers are loaded with "Volck," "Sheps" and "Black Leaf 40" at all times. An ounce of prevention you know.

August 1. Made a rapid survey of my *Echinopsis*. Check showed spraying and outdoor treatment had rid them of the winter pests. Buds showing on some. Fruits on others. Several insist each year on observing South American spring (September to December). My first *Echinopsis* was given me by a neighbor. Squat 4x4 inch, with three half-size offsets in tin

baking dish without drainage hole. She told me her father, a baker, grew only this one variety of cacti. Kept them in basement in winter, quite dry from October to April. Planted them in beds in backyard of garden soil sweetened with charcoal (from hearth bread ovens) and sand. Often had a hundred open a night during August to October. M. & B. helped me to identify it as *E. albiflora* from Argentina. Free bloomer for me. From 1932-1944 it has missed one season (1940), so I've graded it 92%. (School teacher, ain't it?)

August 4. *Echinopsis eyriesii* variety *Wilkinsii* (*Eyriesii* x *Oxygona*) budded for the third time. Single plant 3 inches in diameter in 3½ inch pot. Bloomed first June 19. Delicate pink. In rich clayey soil, ¼ sand which stays moist but not wet. Other plant is in a rich gravelly soil. Same size pot. Dries rapidly. Looks fine though. Gets same treatment but hasn't budded so far. Same parent—same treatment—similar soil but dries too rapidly. For some *Echinopsis* I'm convinced glazed pots would answer many of my seemingly sterile plants.

August 7. No fruits on *Echinopsis kratocbviliana* and *E. hamatacantha*. Bloomed from May 15 to June 15. Tried to self fertilize; tried to hybridize—didn't work. Harry Johnson's glowing tribute to these two not at all overdrawn. Small window-garden winners in 1944—"Pin-up Glamour Girls" and my "Spine Tip Parade." *E. kratocbviliana* bud begins to show activity night before, opens by mid-morning next day and closes by dark. Lavender outer and white inner perianths. Odor of violets. Stigma and anthers yellow. *E. hamatacantha* opens in morning. Broad white inner and outer perianth. Fragrant. Closes by sundown.

August 10. *E. calochlora* bloomed first time this year same night as *E. oxygona*—hybridized? Sure! Both rested all winter on shelf near glass. Bloomed third time today. White, long tube covered with fawn-colored hair. Perfumed? Yes, sir. Does well in a rich, well-drained soil. Has a tendency in my collection whether grafted or on own roots to dry back at growing center. Hybrids show same scar tissue. Tried several things before coffee-can treatment. Put one on own roots in can. Soil stays moist but not wet. After six months, plant has tripled in size and is uniform, light, glossy green. No scars. Tried *E. multiplex* which scars in similar way in same soil and can. Works, I'm sure. (The same treatment may mean more blooms if tried on others of genus.)

August 13. *E. fiebrigii* has first bloom this year. White, 8 inches long, 3½ inches in diameter. Inner perianth segments broader than is usual. Stigma white but style light green. Offset in 1940 from plant in Eugene Ziegler collection. Plant now 3½ inches high and 4 inches in diameter. Not only ribbed but slightly tubercled. Spines light yellow. Buds have some wool on tube when older but buds first appear quite "nude." New to me. *Echinopsis* buds as a rule are hairy from the very first.

August 15. *E. obrepanda*—bloomed first time for me on May 25. Large for size of plant. Plant square-shouldered with a few recurved spines. Buds appear from old areoles. Has few offsets. Black haired scales on eight-inch tube. Bloom 5 inches across. Innermost perianth segments broader than middle row, while third row or outer perianth segments are abruptly pointed and purplish. A favorite. Has 3 buds ready to open within next two weeks and two buds started. Likes rich humus soil and larger pots than usual with plenty of water.

August 17. *E. eyriesii* fruit now over an inch in diameter and 2¼ inches long. Bloomed July 3. *E. albiflora* also but no fruit. Self-fertilized or hybridized?

Bought *E. eyriesii* hybrids *duvalli* and *schelbasei* from Walter Rutter in 1939. Both fine plants. (Rutter bought 50 or more *Echinopsis* from a California collector. True species as well as hybrids.) I'm not discouraged. Too much happening in my cactus domains to worry about such trifles. I'll wait. They'll bloom sometime, so I'll keep records. Perhaps this year's treatment will bring results in 1945.

August 20. *E. oxygona* x *calochlora* seeds harvested from fruits set in March are dry. Ready to plant. Did it with the hope that my hybrids will germinate in a "Christian-manner" not as the "heathen-like" ones from a hybrid of *E. eyriesii* and unknown type of Dr. Machwart's. Seeds germinated over a period of three years. Dr. M.'s theory is that heredity is important. He is working on building up a strong or dominant pink strain from his best pink varieties. He now has two generations at work. He recently hybridized these and has many fruits for that third generation. A bench 3½x22 feet house his "Mendelian" results. *E. obrepanda* had third bloom tonight.

August 24. *E. meyerii*, the true species, not hybrid of *eyriesii* x *leucantha*, is supposed to be a fine plant according to B. & R. Profuse bloomer. Mine 4 inches in diameter or adult size. Has bloom like a bundle of wire bristles. B. & R. say, "remarkable among cacti for its very narrow perianth segments." Likes shade for part of the day the same as the others of this genus. Dr. Machwart refused to believe one labeled "*E. mirabilis*"* had bloomed which has similar narrow perianth segments until bloom dropped off.

August 28. *E. turbinata*, a rooted offset in 1944 is 3 inches tall and 2½ inches in diameter. Budded for the first time. Hope cold weather holds off long enough to let it mature. Moving budded plants often causes buds to blast, changed light and position of plant causes this. Wet fall here causes "So. American summer growth" of plants after "So. American season." *Echinopsis albiflora* bloomed third time. Has three more buds.

August 31. *E. sylvestrii*, a fine compact growing plant, blooms freely for me. Bought from Harry Johnson. White-scentless by day and night. Large, 7½ inches tall and 4 inches in diameter. Scales containing dark brown hair spiraled about tube. My plant 3x3 inches of *E. bridgesii* is growing. Bloom pictured on Page 131, M. & B.; B. & R. say like a *Trichocereus* bloom. My *E. ferox* and *ritteri* although *Echinopsis* in shape are listed in M. & B. as *Lobivias*. Have a hybrid 6 inches high by 5 inches in diameter with two buds. Have decided to buy others soon. *Echinopsis multiplex* has buds set but it usually waits until October to open its exquisite pink tubes of fragrance. My experience recommends *Echinopsis* for window sill culture as well as for greenhouse and open bed.

*EDITOR'S NOTE: Marshall transferred this to *Arborea*. See illustration in "Cactaceae" pg. 92.

One of A. Blanc's customers of the 80's, Laura Johnson Doty of Tennessee, is still an active collector and society member at 82 years of age. She says, "I get as many thrills from receiving a box of fine cacti now as when I started collecting sixty years ago."

John Akers, the succulent enthusiast of Compton, California, was transferred to the Goodyear Tire and Rubber Co. of Akron, Ohio. He missed his Xerophytic plants. He is now assigned to Lima, Peru, where he can devote his spare time to plant hunting.

WANTED CACTUS JOURNAL VOL. I

John E. C. Rodgers, 1299 W. 8th St., Lorain, Ohio

AFFILIATE NOTES

Please send your Affiliate Notes to C. A. Place, Rt. 1, Box 388 T, La Cañada, Calif.

A month has passed since I started my previous column. The bloom has gone from the Yuccas and the great white army has become a thin aggregation of skeletons, as if some fiery blast has stripped them of their flesh and left their bony frames standing there, devoid of life, perhaps to return in another reincarnation and resume the life which has so suddenly been denied them.

Mr. C. L. Wiese (Pres.) writes:

"The Cactus and Succulent Society of Oklahoma, on July 13th, entertained on the lawn of Mr. and Mrs. Jas. H. Hyde, at 122 N.E. 11th St., Oklahoma City. The event was Mrs. S. P. Seela's return home from W.A.A.C. service at Ft. Benjamin Harrison in Indiana. It was a delightful occasion. Our honorary members from the State University at Norman Oklahoma, Dr. Geo. L. Cross, University President and wife, Dr. Milton Hopkins and Dr. Crouch and wife were there. Some thirty members and friends made merry and the party took the place of our regular monthly meeting."

Vitamines from the Varsity?

Mrs. Ethel Rush (D.R.V.P.) writes:

"The Los Angeles Cactus and Succulent Society met Aug. 6th, at the home of Mrs. Anna Moore and a lively discussion was held on the genus *Notocactus*. The first flight of the Affiliate Round Robin was read, discussed and enjoyed by everyone."

Sorry I missed that one.

Mrs. Margaret Radden (Sec.) writes:

"The Cactus and Succulent Club of Chicago held their June meeting at the home and garden of our charming hostess, Mrs. Warren Christopher. An experimental plant was given each member. The door prize, *Esposita lanata* was won by Mrs. Radden. June 17th, Round Robin, Mr. Von Behren from Baltimore called on Mrs. Akins. June 24th he called on Mrs. Radden and we spent all Saturday afternoon in the greenhouse, asked him to come back the next day, Sunday, and took him to our Cactus Society meeting. Mrs. Anderson took him to his camp. We all enjoyed having one of our Round Robins pay us a visit and hope all Round Robins of our Cactus Clubs would do the same thing, it would add a great interest to our lovely cult. July 11 we met at the home of Myrtle Akins. *Opuntia* was our experimental plant. We are very happy to welcome Mrs. Harry Osgood back into our Cactus Club again."

When the little Round Robin flutters from tree to tree,

It adds a spice of life, both for you and me.

Mr. A. Malcom (Pres.) writes:

"The Philadelphia Cactus and Succulent Society has eliminated meetings during the hot summer months and don't think they are not hot here in Philadelphia—hot and humid. In the fall we are contemplating meeting every other month because of inroads on members' time due to their contributions to the war effort. We all hope and pray that as soon as we get started the war will be over and we can go back on a full time monthly schedule. Mr. Nabenhauer has an order in to Mr. Schmoll in Mexico, which includes quite a collection of *Stenocactus* or *Echinofossulocactus*, take your choice. Yesterday I did a batch of grafts, my first large scale venture, now I have my fingers crossed. I did a few last year and they are doing very well. They included a couple of *Rebutia senilis*, two *Echinocereus* crests and a *Mammillaria bocasana*. I am overjoyed with my blooming results, more flowers than ever. Will have to write up the score later. Congratulations

to Detroit, we wish them all the Cactus luck there is."

The spirit of fraternity.

Homer Rush (D.R.V.P.) writes:

"The Long Beach Cactus Club held their August meeting at the home of President Burgess where a good crowd turned out. The Affiliate Round Robin was read, discussed and sent on."

That Robin is getting around.

Mr. G. W. van der Bundt (correspondent) writes:

"The Oakland Cactus and Succulent League held their August meeting at the W. Andrews' home. The members gathered were gratified that Will Andrews was appointed Regional Vice-President for Northern California. There was a nice gathering with 22 members being present. Jack Whitehead brought with him some California *Dudleyas*, some *Cotyledons* and allied plants. He talked on these plants and pointed out the characteristics of the different genera. His talk was as always very interesting. Nomination of officers for the coming year was in order. Our Club went democratic and wants to draft Mrs. Newlon, present President, for a third term."

Dudleyas is my middle name. We have several varieties within a short distance of our home.

Mr. Ladislaus Cutak (Pres.) writes:

"Our second anniversary party of the Henry Shaw Cactus Society, was held at Austin's Alpine Gardens on July 9th, and there were 50 adults present and about 15 children. Not a bad crowd at all. We had a lovely day this time. Remember last year? It rained to beat the band up till 1 o'clock and then commenced again at 7 p. m. Yet we had a great crowd. The Austins are fine people. They have three or four small greenhouses filled with succulents and miscellaneous material. In a letter from Mr. Garrabrant, he recently told me about his night-blooming *Cerei* and particularly mentioned *Selenicereus vagans*. As we didn't have this species, he kindly sent me a nice cutting. Our night-blooming cacti have been a gorgeous sight this year. Buds are still coming and several species bloomed for the first time."

A letter from Lad Cutak is always appreciated.

Mr. John E. Rodgers (Sec.) writes:

"The Midwest Cactus and Succulent Society is planning to campaign for a permanent planting at the City Greenhouses in Cleveland. I know it'll take time to get a good planting and adequate care. But so far our Club has gotten what it went after. Thanks for the plug in the JOURNAL, it was kind of you to keep us in mind. It may reach some kind individual such as A. S. Harmer has been to me. He sent me 71 plants, 55 species. So many of my readers have written letters thanking me for my column, I feel almost thankful I can do it. I know when I try to find cultural information for plants I'm discouraged and have to fall back on my experience. Scott has been kind and considerate. My three-year-old cutting of *Hylocereus undatus* bloomed Monday night—the first I've seen. It was a thrill. Three more buds developing now. Friends and neighbors in to see it. Tried a cross between *Epiphyllum cartagense* and *Hylocereus undatus*. I'm a 'goose,' to try it, but I'm a born experimenter so I'll hope for results."

"No cross, no crown."

The dead-line for this column is the 15th of the month.

Canadian collectors can now import cacti once more. The joker is to find retailers who are equipped to comply with the red tape that is required to ship into Canada. Our old friend C. W. Armstrong of Vancouver plans to rebuild his collection.



SPINE CHATS

LADISLAUS CUTAK



In the general field of horticulture no books are better known than Bailey's "Standard Cyclopaedia of Horticulture" and "Hortus," which have become universal authority. Many of us, no doubt, first learned about cacti and succulents from Bailey's great Cyclopaedia for these groups are extensively treated therein. Many years ago, Dr. Liberty Hyde Bailey was a professor in Cornell University. He had greenhouses in his charge and personally grew a wide variety of plants. Later on he acquired greenhouses of his own and for many years grew general mixed collections of species, many of which one rarely sees now in cultivation. Incidentally, he never gave any particular attention to the growing of cacti, inasmuch as one does not generally handle these plants in houses of mixed vegetation. He is, however, very glad to see the growing interest in cacti and succulents, for it gives a new and stimulating note to our horticulture. This he confided to me recently. You might be interested to learn how Dr. Bailey secured his odd baptismal name of "Liberty." His grandfather, Dana Bailey, in southern Vermont, was one of the early abolitionists and a member of the State Legislature. One winter when he was attending legislative sessions over the mountains at Montpelier he had word from home that a son had been born and what should be his name. He wrote back to call him "Liberty" for all shall be free. That son died as a little lad, and in the old New England custom the next son born in the family took the name. The next son was Dr. Bailey's father. He again bestowed his own name to his son. This is the tradition as to the origin of the name "Liberty" and Dr. Bailey supposes it is correct. The name, "Hyde," came from Lucy Hyde, one of his maternal ancestors. Dr. Bailey is still very much active in spite of his octogenarian years and is doing excellent work on the palms, another plant group I'm interested in. He is also a poet of note, his 216-page book of verse, *WIND AND WEATHER*, much treasured by me.

Mrs. C. W. Nipper of Chester, Illinois, has been a member of our national organization for the past two years and she has found the *CACTUS JOURNAL* most helpful in the pursuit of her hobby. Her interest in cacti really started in 1941 when her only daughter, Eulalia, presented her with a small lace cactus, *Echinocereus Reichenbachii*. Shortly after a Chicago friend, a California niece and a neighbor gave her a total of one hundred miscellaneous desert species and Ella Nipper really became enthusiastic. She does not care to specialize in any particular group but prefers *Echinocereus* and *Ferocactus* if a choice had to be made. However, her pet cactus is a certain *Opuntia* which was given to her husband on his birthday but which is now claimed by her. Incidentally, the native *Opuntia Rafinesquei* was the first cactus that struck her fancy. She was six years old when she espied a lovely clump all abloom in her father's pasture and was tempted to pick the satiny yellow flowers. Her dad forbade her to touch the prickly plant, but she never stopped admiring it. One day a fire raged through the pasture and reduced the *Opuntia* to a charred mass. Mrs. Nipper boasts a collection of some two hundred

interesting cacti and succulents.

Three new species and five varieties of *Haworthia* were recently described and illustrated by G. G. Smith in the quarterly, *Journal of South African Botany* (10:11-24, January, 1944), thus swelling the number in this interesting South African plant group. Five additional varieties, *brevicula*, *grandicula*, *huntsdriftensis*, *riebeekensis* and *zebrina* have been appended to the distinctive *H. Reinwardtii*, raising to more than 10 the varieties now recognized in this variable species. *Haworthia baccata*, *H. lepida* and *H. ramosa* are also recorded for the first time, the last two included in the *Obtusatae* section, to which the common *H. cymbiformis* belongs. The former belongs to the *Coarctatae* section and is closely related to *H. Chaluwinii* and *H. Reinwardtii*.

Graham Heid of Hollywood, California, has described a new night-flowering hedgehog cactus from southwestern Chihuahua, Mexico, where it was collected by Dr. R. T. Craig. Unlike most night bloomers the flowers of this new cactus, *Echinocereus Salm-Dyckianus* var. *noctiflorus* are purplish-pink to scarlet. For further comments see the April, 1944, number of *Leaflets of Western Botany*.

Flowers as source of human food may be news and it may not. Orientals have been feasting on chrysanthemums for centuries. *Yucca* blossoms appeared appetizing enough to Indians and Mexicans, for they too used them as food on occasions. Efforts to utilize the *Yucca* flowers by white man have not been successful as yet, but there is a possibility that they may be suitable and prove a valuable addition to our economy if they could be exploited as a source of human food. Four members of the Utah Academy of Sciences, Arts and Letters have tested the flowerstalks and flowers of the Joshua tree in experimental cookery for palatability and flavor, but so far with negative results. The flower petals when raw are tender and succulent and have a rather interesting flavor and aroma, but they leave a peculiar bitter, astringent taste in the mouth. In cooking the flowers, the bitter taste still persists and a somewhat slippery, soapy flavor and texture is developed. The initial experiments indicate that the chief problem is one of finding palatable preparations as food, mainly through elimination of bitterness and soapy flavor, but the potentials are such that the experimenters believe further investigations should be carried on. The Joshua tree flowers offer a crop that could be harvested with ease without danger to the tree itself or to the maintenance of the forest cover.

Modern methods of reinforcing buildings were anticipated by 17th century Jesuits in Mexico, using the woody skeletons of the Saguaro in place of steel.

*EDITOR'S NOTE: See the *AMATEUR BULLETIN*, pg. 96 (1942). Robert S. Woods of Azusa, California, gave this plant its first publicity with a photo of the plant collected by Dr. R. L. Craig. Also see photo by Graham Heid in *JOURNAL*, April, 1944, pg. 52.

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Historie Abregee Des Insectes—par M. Geoffrey, Paris, 1764. Two volumes and 22 engraved plates. A succulent collector will note on page 497 of Vol. I that aphids were popular in those days! These books were imported from Heidelberg, Germany, in 1883.

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